

# SEQUENCE LISTING

<110> Ribozyme Pharmaceuticals, Inc.  
Thompson, Jim  
McSwiggen, Jim  
Haeberli, Pete  
Beigelman, Leo  
Karpeisky, Alex  
Bellon, Lauren  
Reynolds, Mark  
Zwick, Michael  
Jarvis, Thale  
Woolf, Todd  
Matulic-Adamic, Jasenka

<120> Nucleic Acid Molecules with Novel Chemical Compositions Capable of  
Modulating Gene Expression

<130> MBHB00,873-H 500/004

<150> US 09/103,656  
<151> 1998-06-23

<150> US 60/082,404  
<151> 1998-04-20

<160> 15

<170> PatentIn version 3.0

<210> 1  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Active GeneBloc Sequence

<220>  
<221> misc\_feature  
<222> (1)..(7)  
<223> 2'-O-Methyl

<220>  
<221> misc\_feature  
<222> (17)..(22)  
<223> 2'-O-Methyl

<220>  
<221> misc\_feature  
<222> (1)..(3)  
<223> Phosphorothioate 3'-Internucleotide Linkage

<220>  
<221> misc\_feature  
<222> (8)..(16)

<223> Phosphorothioate 3'-Internucleotide Linkage

<220>

<221> misc\_feature

<222> (20)..(22)

<223> Phosphorothioate 3'-Internucleotide Linkage

<400> 1

ugauucuttc caggctcaug aat

23

<210> 2

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Mismatch control GeneBloc sequence

<220>

<221> misc\_feature

<222> (1)..(7)

<223> 2'-O-Methyl

<220>

<221> misc\_feature

<222> (17)..(22)

<223> 2'-O-Methyl

<220>

<221> misc\_feature

<222> (1)..(3)

<223> Phosphorothioate 3'-Internucleotide Linkage

<220>

<221> misc\_feature

<222> (8)..(16)

<223> Phosphorothioate 3'-Internucleotide Linkage

<220>

<221> misc\_feature

<222> (20)..(22)

<223> Phosphorothioate 3'-Internucleotide Linkage

<400> 2

ugauucuttg cccgatcaug aat

23

<210> 3

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Active GeneBloc Sequence

<220>  
 <221> misc\_feature  
 <222> (1)..(1)  
 <223> 3'-3' inverted abasic moiety

<220>  
 <221> misc\_feature  
 <222> (25)..(25)  
 <223> 3'-3' inverted abasic moiety

<220>  
 <221> misc\_feature  
 <222> (2)..(8)  
 <223> 2'-O-Methyl

<220>  
 <221> misc\_feature  
 <222> (18)..(24)  
 <223> 2'-O-Methyl

<220>  
 <221> misc\_feature  
 <222> (9)..(17)  
 <223> Phosphorothioate 3'-Internucleotide Linkage

<400> 3  
 nugauucutt ccaggctcau gaaun

25

<210> 4  
 <211> 25  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Mismatch control GeneBloc sequence

<220>  
 <221> misc\_feature  
 <222> (1)..(1)  
 <223> 3'-3' inverted abasic moiety

<220>  
 <221> misc\_feature  
 <222> (25)..(25)  
 <223> 3'-3' inverted abasic moiety

<220>  
 <221> misc\_feature  
 <222> (2)..(8)  
 <223> 2'-O-Methyl

<220>  
 <221> misc\_feature  
 <222> (18)..(24)  
 <223> 2'-O-Methyl

<220>  
 <221> misc\_feature  
 <222> (9)..(17)  
 <223> Phosphorothioate 3'-Internucleotide Linkage

<400> 4  
 nugauucutt gcccgatcau gaaun

25

<210> 5  
 <211> 15  
 <212> RNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Generic Target Sequence

<220>  
 <221> misc\_feature  
 <222> (1)..(6)  
 <223> n stands for a, c, g, or u

<220>  
 <221> misc\_feature  
 <222> (9)..(15)  
 <223> n stands for a, c, g, or u

<400> 5  
 nnnnnnuhnn nnnnn

15

<210> 6  
 <211> 36  
 <212> RNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Enzymatic Nucleic Acid

<220>  
 <221> misc\_feature  
 <222> (1)..(7)  
 <223> n stands for a, c, g, or u

<220>  
 <221> misc\_feature  
 <222> (16)..(18)  
 <223> n stands for a, c, g, or u

<220>  
 <221> misc\_feature  
 <222> (23)..(25)  
 <223> n stands for a, c, g, or u

<220>

<221> misc\_feature  
<222> (31)..(36)  
<223> n stands for a, c, g, or u

<220>  
<221> misc\_feature  
<222> (1)..(8)  
<223> 2'-O-Methyl

<220>  
<221> misc\_feature  
<222> (12)..(12)  
<223> 2'-O-Methyl

<220>  
<221> misc\_feature  
<222> (14)..(26)  
<223> 2'-O-Methyl

<220>  
<221> misc\_feature  
<222> (28)..(29)  
<223> 2'-O-Methyl

<220>  
<221> misc\_feature  
<222> (31)..(36)  
<223> 2'-O-Methyl

<220>  
<221> misc\_feature  
<222> (9)..(9)  
<223> 2'-deoxy-2'-C-Allyl

<400> 6  
nnnnnnncug augagnnnga aannncgaaa nnnnnn

36

<210> 7  
<211> 14  
<212> RNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Generic Target Sequence

<220>  
<221> misc\_feature  
<222> (1)..(5)  
<223> n stands for a, c, g, or u

<220>  
<221> misc\_feature  
<222> (8)..(14)  
<223> n stands for a, c, g, or u

<400> 7  
nnnnnchnnn nnnn

14

<210> 8  
<211> 35  
<212> RNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Enzymatic Nucleic Acid

<220>  
<221> misc\_feature  
<222> (1)..(7)  
<223> n stands for a, c, g, or u

<220>  
<221> misc\_feature  
<222> (16)..(18)  
<223> n stands for a, c, g, or u

<220>  
<221> misc\_feature  
<222> (23)..(25)  
<223> n stands for a, c, g, or u

<220>  
<221> misc\_feature  
<222> (31)..(35)  
<223> n stands for a, c, g, or u

<220>  
<221> misc\_feature  
<222> (1)..(8)  
<223> 2'-O-Methyl

<220>  
<221> misc\_feature  
<222> (12)..(12)  
<223> 2'-O-Methyl

<220>  
<221> misc\_feature  
<222> (14)..(26)  
<223> 2'-O-Methyl

<220>  
<221> misc\_feature  
<222> (28)..(29)  
<223> 2'-O-Methyl

<220>  
<221> misc\_feature  
<222> (31)..(35)  
<223> 2'-O-Methyl

<220>  
<221> misc\_feature  
<222> (30)..(30)  
<223> n stands for Inosine

<220>  
<221> misc\_feature  
<222> (9)..(9)  
<223> 2'-deoxy-2'-C-Allyl

<400> 8  
nnnnnnncug augagnnnga aannncgaan nnnnn

35

<210> 9  
<211> 15  
<212> RNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Generic Target Sequence

<220>  
<221> misc\_feature  
<222> (1)..(6)  
<223> n stands for a, c, g, or u

<220>  
<221> misc\_feature  
<222> (9)..(15)  
<223> n stands for a, c, g, or u

<400> 9  
nnnnnnnyggn nnnnn

15

<210> 10  
<211> 35  
<212> RNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Enzymatic Nucleic Acid

<220>  
<221> misc\_feature  
<222> (1)..(7)  
<223> n stands for a, c, g, or u

<220>  
<221> misc\_feature  
<222> (29)..(35)  
<223> n stands for a, c, g, or u

<220>

<221> misc\_feature  
<222> (1)..(8)  
<223> 2'-O-Methyl

<220>  
<221> misc\_feature  
<222> (13)..(16)  
<223> 2'-O-Methyl

<220>  
<221> misc\_feature  
<222> (18)..(35)  
<223> 2'-O-Methyl

<220>  
<221> misc\_feature  
<222> (11)..(11)  
<223> Phosphorothioate 3'-Internucleotide Linkage

<400> 10  
nnnnnnnuga uggcaugcac uaugcgcgnn nnnnn

35

<210> 11  
<211> 48  
<212> RNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Enzymatic Nucleic Acid

<220>  
<221> misc\_feature  
<222> (1)..(8)  
<223> 2'-O-Methyl

<220>  
<221> misc\_feature  
<222> (12)..(21)  
<223> 2'-O-Methyl

<220>  
<221> misc\_feature  
<222> (32)..(37)  
<223> 2'-O-Methyl

<220>  
<221> misc\_feature  
<222> (44)..(48)  
<223> 2'-O-Methyl

<220>  
<221> misc\_feature  
<222> (9)..(10)  
<223> 2'-deoxy-2'-amino



<220>  
<221> misc\_feature  
<222> (22)..(26)  
<223> 2'-deoxy-2'-amino

<220>  
<221> misc\_feature  
<222> (38)..(40)  
<223> 2'-deoxy-2'-amino

<400> 11  
gugugcaacc ggaggaaacu ccuucagg acgaaagucc gggacggg

48

<210> 12  
<211> 16  
<212> RNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Target Nucleic Acid Sequence

<400> 12  
gccguggguu gcacac

16

<210> 13  
<211> 36  
<212> RNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Enzymatic Nucleic Acid

<220>  
<221> misc\_feature  
<222> (1)..(7)  
<223> 2'-O-Methyl

<220>  
<221> misc\_feature  
<222> (36)..(36)  
<223> 3'-3' inverted abasic moiety

<220>  
<221> misc\_feature  
<222> (9)..(15)  
<223> 2'-O-Methyl

<220>  
<221> misc\_feature  
<222> (19)..(19)  
<223> 2'-O-Methyl

<220>  
<221> misc\_feature

```

<222> (21)..(21)
<223> 2'-O-Methyl

<220>
<221> misc_feature
<222> (23)..(23)
<223> 2'-O-Methyl

<220>
<221> misc_feature
<222> (26)..(26)
<223> 2'-O-Methyl

<220>
<221> misc_feature
<222> (28)..(35)
<223> 2'-O-Methyl

<220>
<221> misc_feature
<222> (1)..(4)
<223> Phosphorothioate 3'-Internucleotide Linkage

<220>
<221> misc_feature
<222> (17)..(17)
<223> 2'-Deoxy-2'-Amino

<220>
<221> misc_feature
<222> (27)..(27)
<223> 2'-Deoxy-2'-Amino

<400> 13
gugccuggcc gaaaggcgag ugaggucugc cgcgcn 36

<210> 14
<211> 15
<212> RNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Target Nucleic Acid Sequence

<400> 14
gcgcggcgca ggcac 15

<210> 15
<211> 16
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNase Motif

```

<400> 15  
rggctagcta caacga

16